

Characterization of smallholder pig production systems in Uganda: constraints and opportunities for engaging with market systems

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Introduction

- Over the past three decades pig population has increased from 0.19 to 3.2 million. In 2011, Uganda had the highest *per capita* consumption of pork in Sub-Saharan Africa (3.4 kg person⁻¹ year⁻¹).
- More than 1.1 million poor households (18% of total in 2008) own pigs, mostly managed by women and children as a crop-livestock systems' backyard activity.
- The CGIAR Research Program on Livestock and Fish have identified the smallholder pig value chain in Uganda as a high-potential target to translate research into major interventions that can stimulate pro-poor transformation and generate benefits at scale.

Objective

- To characterize smallholder pig production systems into typologies in order to assess constraints and improve targeting of technological and institutional interventions.



Sow that has produced piglets targeted for sale by the pig farmer



Data collection process

Methodology

- Data was collected through focus group discussions in 35 villages of Masaka, Kamuli and Mukono districts on a stratified sample of approximately 1400 pig farmers (about 60% women).
- Semi-qualitative interview checklist was used and Participatory Rural Appraisal techniques applied to collect data on 3 themes considered important in identifying pig production system typologies:
 - Farmers' cooperative involvement,
 - Affiliation to institutions involved in the pig value chain,
 - Intensification indicators such as breed type, housing and husbandry practices including iron injection, deworming, castration and sow servicing.
- A standard cluster analysis was applied utilizing Ward's hierarchical algorithm based on squared Euclidean distances and a *K-means* iterative partitioning.

Results

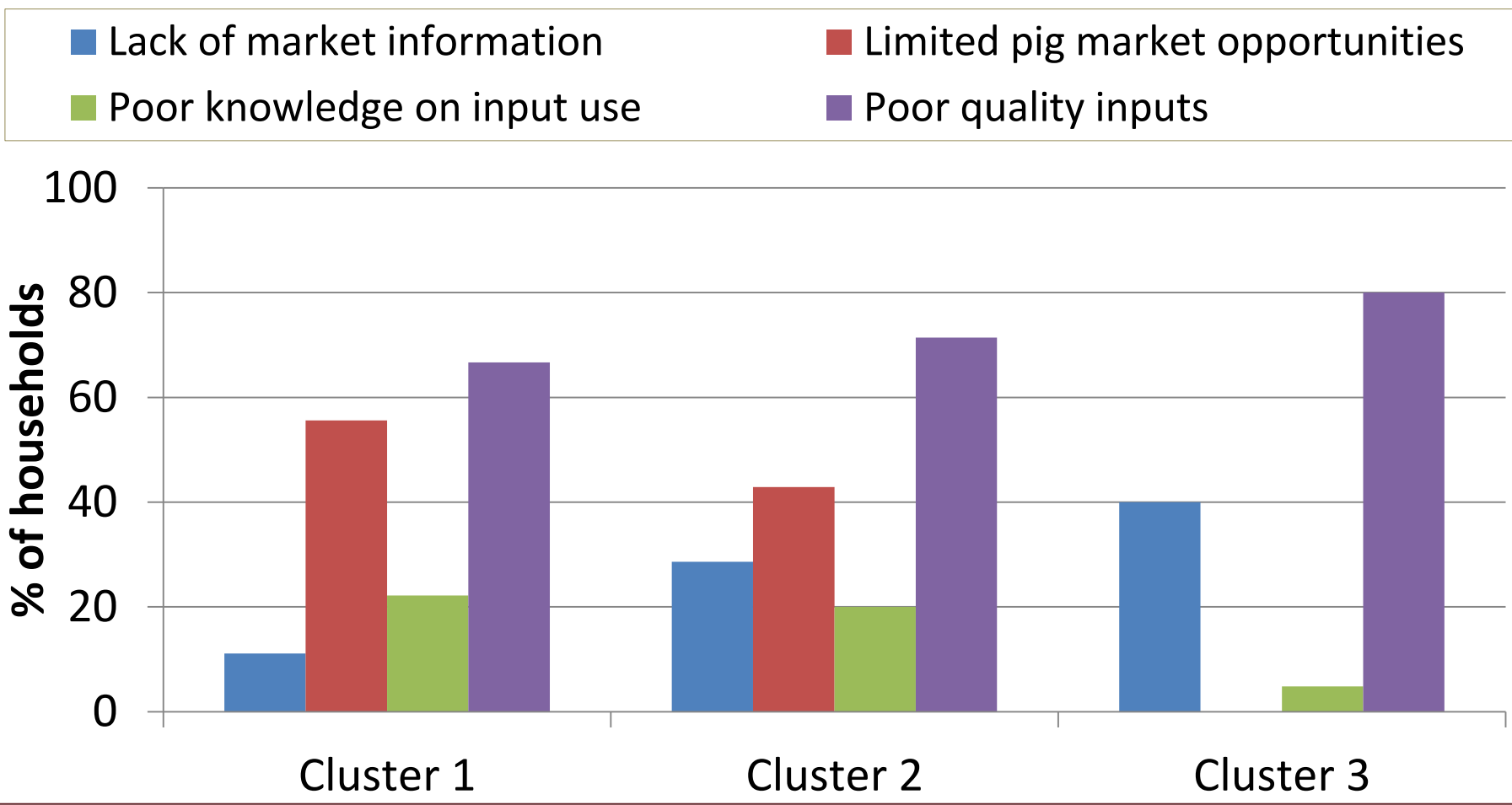
- The 3 themes used to identify production system typologies reliably differentiate the smallholder pig production system types through their cluster means. Three typologies are evident:

Table 1: Extracted cluster solution

	Cluster 1	Cluster 2	Cluster 3
% in each cluster	26%	60%	14%
% in value chain domains			
Rural production for rural consumption	67	57	0
Rural production for (peri) urban consumption	33	19	0
Peri-urban production for (peri) urban consumption	0	24	100
Variables (Mean and S.D.)			
Cooperative involvement and affiliation to institutions			
% of farmers - members of farmer groups	28 (27)	42 (36)	62 (28)
% of farmers in pig producer groups	15 (36)	2 (4)	33 (48)
No. of institutions involved in livestock value chains	2 (1)	2 (1)	3(1)
Intensification indicators			
% households with improved breeds	52 (18)	58 (23)	81 (8)
% of households having pig sties	13 (12)	27(15)	98(5)
% of households tethering pigs	69 (27)	41 (28)	8(8)
% of households practicing free range	16 (21)	14 (19)	3(8)
Husbandry practices			
% of households giving iron injection	2 (4)	7 (17)	33 (41)
% of households servicing sows	0 (0)	91 (13)	0 (0)

- Land is generally not a constraining resource in clusters 1 and 2 (average of 1-2 acres per household) compared to cluster 3 (0.5 acres)

Cluster constraints associated with input and output marketing



- Existence of 3 clusters with unique characteristics and constraints, requiring different intervention packages.
- Cluster 1: “rural extensive and association-poor producers”** - minimal involvement in farmer groups and low investments in the pig enterprise. Major constraint is limited market opportunities.
- Cluster 2: “rural intensive and extensive producers”** - mixed group comprising both extensive and some intensive producers, display relatively high cooperative behavior than cluster 1. The cluster has similar output market constraints as those in cluster 1.
- Cluster 3: “peri-urban intensive associational type producers”** - cooperative behavior, close proximity to demand areas and existence of supportive institutions providing inputs and advisory services. Main constraints include lack of breeding services and market information.